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PATENT SPECIFICATION

DRAWINGS ATTACHED

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COMPLETE SPECIFICATION

An improved Maize or like Crop Harvesting Attachment for Harvesting Machines

We, MASCHINENFABRIK FAHR A.G., of 7702 Gottmadingen, District of Constance, Germany, a German Company, do hereby declare the invention for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to an attachment for the cutting platform of a combine harvester, or other reaping machine, to enable maize and like long-stalk crops to be harvested.

Known devices of this kind comprise torpedo-like crop dividers with contra-rotating feed chains and these are heavy, have complicated gear drives and take a long time to mount on a machine.

Other maize-harvesting appliances consist of pairs of adjustable drums with cooperating profiles and feed screws as plucking devices but these are liable to breakdown and to become clogged, especially with tangled maize plants and hanging cobs. Also, the cobs are only torn from the stalks which must then be cut down and ploughed-in.

The object of the present invention is to provide a simple, one-row harvesting device which is reliable and can be quickly and easily attached to existing harvesters of various working widths.

According to the invention, a maize or like long-stalk crop harvesting attachment, for the cutting platform of a combine harvester or reaping machine, has a feed wheel arranged on a substantially vertical axis, so that its periphery forms one side of a feed mouth through which the crop is fed to the cutting mechanism, and the feed wheel is driven by a transmission belt or chain which also acts as a crop stripper for the feed wheel. Preferably, the feed wheel has teeth projecting around its periphery for gripping and feeding the crop stalks.

In a preferred construction, the attachment

consists of two units, a feed wheel and transmission unit and a guide unit forming the other side of the feed mouth.

Also, two or more feed wheels may be provided, spaced one above another and driven by one or more belts or chains.

Further features of the invention will now be described with reference, by way of example, to the accompanying drawings, in which:

Fig. 1 is a plan of a maize-harvesting device attached to the platform of a combine harvester,

Fig. 2 is a front elevation corresponding to Fig. 1,

Fig. 3 is a view of a feed wheel and belt-transmission unit, seen from in front and above

Fig. 4 shows a guide unit in perspective,

Fig. 5 is a plan of a maize-harvesting device with two feed wheels, mounted on a combine harvester, and

Fig. 6 is a diagrammatic representation of the belt transmission of the device of Fig. 5.

In the embodiment shown by Figs. 1 to 4, a combine harvester 1 has a platform 2 with two side pieces 3 and 4 which carry the attachment provided by the invention for harvesting maize and like crops.

The attachment comprises two units which can be attached to a normal commercial combine harvester. The feed wheel and belt-transmission unit shown in Fig. 3 is provided with an angle section bracket 5 with holes 6 for attachment to the platform side piece 3 on the stubble side of the harvester. Mounted on the bracket 5 is a tube 7, with a bearing 8 in which a feed wheel 9 can rotate about an axis which is almost vertical but inclined downwardly in the direction of travel. The feed wheel 9 is preferably constructed as a V-belt pulley and on its lower part has a number of gripper teeth 10 projecting around the periphery. The tube 7 extends from the bearing 8 in the direction of travel beyond the feed

wheel 9 and the path of the teeth 10 forwardly and then approximately vertically downward, terminating in a tube section 11 spaced from the cutters of the harvester.

5 Fast with the tube section 11 is another support 12, which extends first below the feed wheel 9 with a gentle upward slope towards the platform side piece 4 on the grain side of the harvester and then, bending approximately at right angles, rises towards the bracket 5, to which it is secured. Mounted on the supporting tube 12 is a connecting piece 13 having a fixing angle-piece 14 on its lower end.

15 Extending over the entire length of the supporting tube 12 is a back cover plate 15. The upper part 15¹ of the cover plate 15 is angled slightly forward, so that this part partly or entirely also covers over the transmission. Below the feed wheel 9, the cover plate 15 is carried around the bent part of the supporting tube 12, and terminates at the vertical part of the tube section 11, to which it is bolted at the points 16. This part of the cover plate, from the bend of the supporting tube 12 to the fixing points 16, is denoted by 15¹¹ and forms a side wall for the feed mouth. Two or more stays 17 are fast with the tube 7 and the angled upper part 15¹ of the cover plate 15 is secured to these stays. The cover plate not only protects the transmission, but also forms a guide wall for the harvested crop, so that the maize plants do not get caught.

35 The transmission unit described above can be attached to the platform of a normal commercial combine harvester by means of a few bolts. For this purpose, it is merely necessary to bolt the angle section bracket 5 to the platform side piece 3 and to attach the fixing angle 14 by a finger screw to the cutting mechanism frame.

45 The drive of the transmission is derived from the reel drive shaft 18, as normally provided on the combine harvester, by means of a belt pulley 19. For this purpose, the angle section bracket 5 carries two adjustable tensioning and guide pulleys 20 and 21. In the drawings, these pulleys are shown one behind the other on the bracket 5, but they could also be mounted one above the other, or constructed as double V-belt pulleys.

50 An endless V-belt 22 drives the feed wheel 9 from the pulley 19 and over the guide pulleys 20 and 21.

55 The guide unit (Fig. 4) has a guide bar 23 to be fixed to the platform side piece 4 on the crop side of the harvester. For this purpose, the guide bar 23 is provided with a strut 24, by means of which it is bolted to the front end of the platform side piece 4. The guide bar 23 terminates below in a rearwardly directed tube end 23¹, which is bent up inwardly, is flattened and is provided with a hole 25. By a finger screw through this hole, the guide bar 65 can be screwed fast to the cutting mechanism

frame. Inwardly curved deflectors 26 are provided fast on the guide bar 23 for guiding the crop to the feed wheel 9.

70 Figs. 5 and 6 show an embodiment with two feed wheels. Welded to the bend of the supporting tube 12 is a plate 27 in which is journaled another, but smaller, feed wheel 28 with gripper teeth 29. An additional guide pulley 30 is mounted on the supporting tube 12 and another guide pulley 31 on the end of the tube section 11. The driving belt 32 in this case runs from the reel pulley 19 over the guide pulley 21, feed wheel 28 and guide pulley 20 back to the pulley 19.

80 In this embodiment, the cover plate 15, arranged in front of the feed screw 36, extends up to the path of the gripper teeth 10 of the feed wheel 9. At the junction of the supporting tube 12 and the tube section 11, the run 32¹ of the belt, between the guide pulley 31 and the feed wheel 28, also has the function of guiding the crop, in the lower part of the device, to the cutters. At the same time, without it being necessary for the adjacent parts of the tube 12 and vertical tube section 11 to be covered by a plate, downwardly hanging leaves cobs, etc. are prevented from being caught in the mouth of the device.

95 Instead of one or more feed wheels 9, 28 being driven by a single, endless V-belt 32, a plurality of V-belts may be used, the guide pulleys then being double pulleys and the entire drive being thereby divided up into smaller sections. It is also possible to use flat belts or chains for driving. Driving belts or like means may be provided with teeth throughout their length to augment the feed action.

100 If a normal commercial combine harvester is to be converted for harvesting maize, all that is necessary is to drill a few holes in its platform for attachment of the device, consisting of the two units, and then to put on the V-belt. The portion of the cutter mechanism not required is covered by a guard of suitable length.

110 The mode of operation of the device is then as follows:

115 The reel driving shaft 18 is driven so that the pulley 19 and belt 22 or 32 drives the feed wheel 9, and in the second constructional example also the feed wheel 28 as the combine harvester 1 moves along a row of the crop 33, the deflectors 26, mounted on the guide bar 23, guide the crop entering the mouth of the device to the feed wheel 9, 28, whereupon the crop is seized by the gripper teeth 10, 29. When the crop has been cut by the cutters 34, located at the throat of the device, the feed wheel 9, or the feed wheels 9 and 28, move the material under the platform 125 of the harvesting machine. The deflector 35 lays the harvested crop transversely of the direction of travel in the platform trough, where it is engaged by the feed screw 36 and conveyed to the threshing machine.

The driving belt as it leaves the feed wheel acts as a stripper for the gripper teeth 10, so that any pieces of the crop caught on the teeth 10 are stripped off.

5 WHAT WE CLAIM IS:—

1. A maize or like long-stalk crop harvesting attachment, for the cutting platform of a combine harvester or reaping machine, in which a feed wheel is arranged on a substantially vertical axis, so that its periphery forms one side of a feed mouth through which the crop is fed to the cutting mechanism and the feed wheel is driven by a transmission belt or chain which also acts as a crop stripper
10 for the feed wheel.
15

2. An attachment according to claim 1 and consisting of two units, a feed wheel and transmission unit and a guide unit forming the other side of the feed mouth.

20 3. An attachment according to claim 1 or 2, in which two or more feed wheels are provided, spaced one above the other and driven by one or more belts or chains.

25 4. An attachment according to claim 1, 2 or 3, in which the axis of the feed wheel or

wheels is slightly inclined downwardly in the direction of travel of the harvester.

5. An attachment according to any one of the foregoing claims, in which the or each feed wheel has gripper teeth projecting around the periphery. 30

6. An attachment according to claim 2 or claims 2 and 3, in which the feed wheel and transmission unit has an angle-section bracket, to be bolted to the cutting platform, and carrying tubes with a bearing for the or each feed wheel. 35

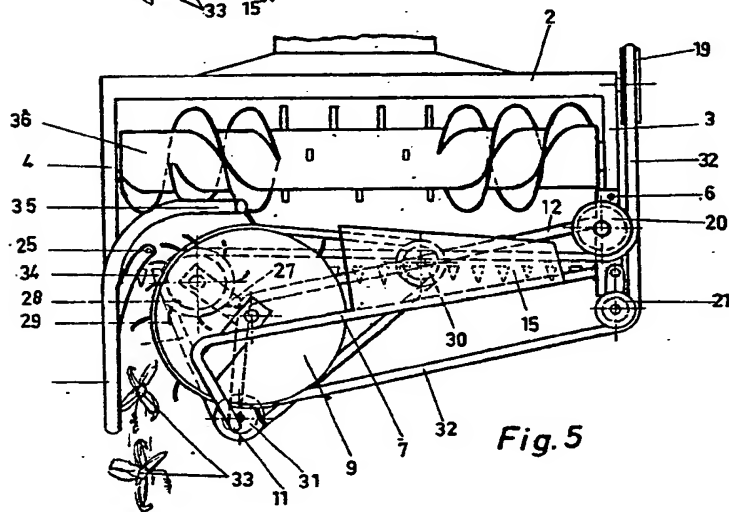
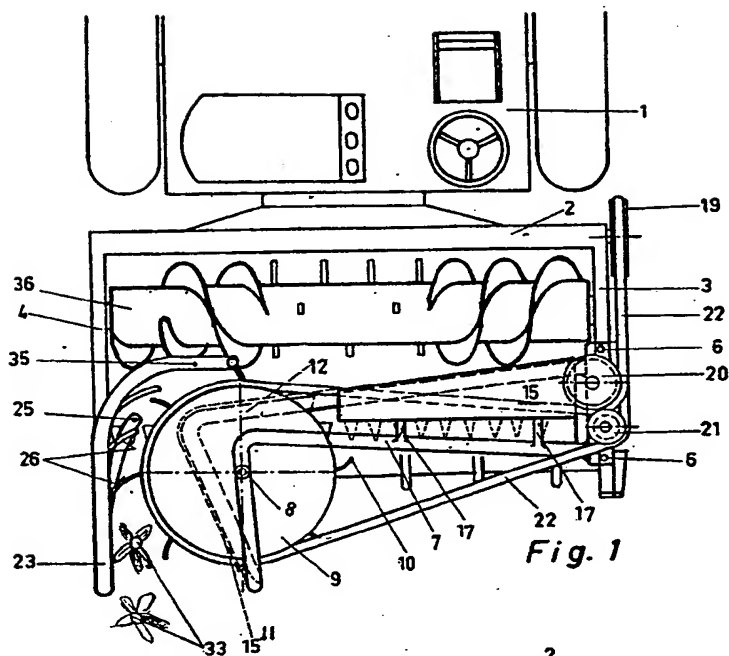
7. An attachment according to any one of the foregoing claims, in which the belt or chain transmission has a back cover plate. 40

8. An attachment according to claim 7, in which part of the back cover plate forms a side wall for the feed mouth.

9. An attachment substantially as described with reference to Figs. 1 to 4 or Figs. 5 and 6 of the accompanying drawings. 45

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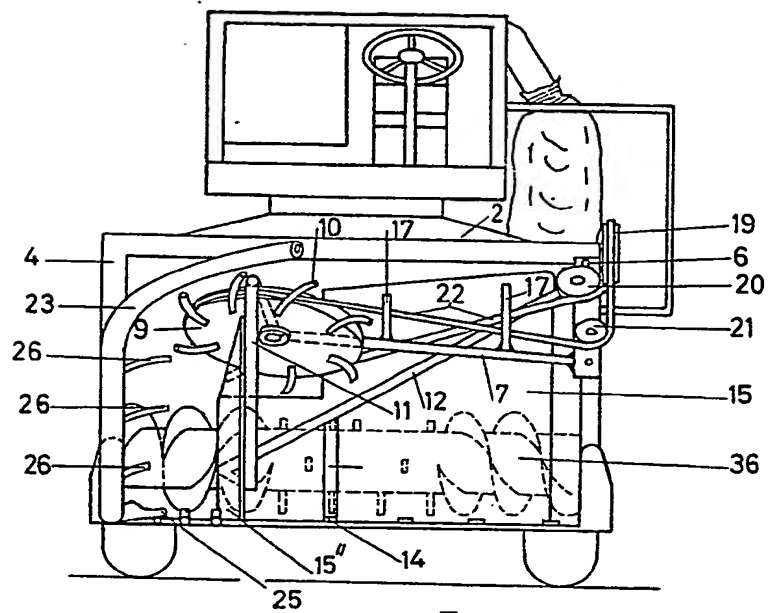


Fig. 2

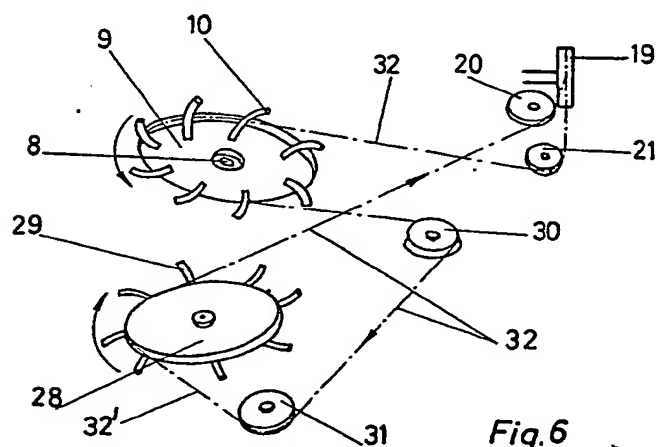
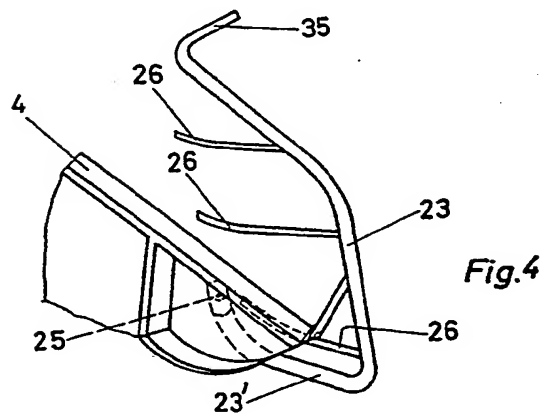
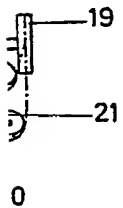
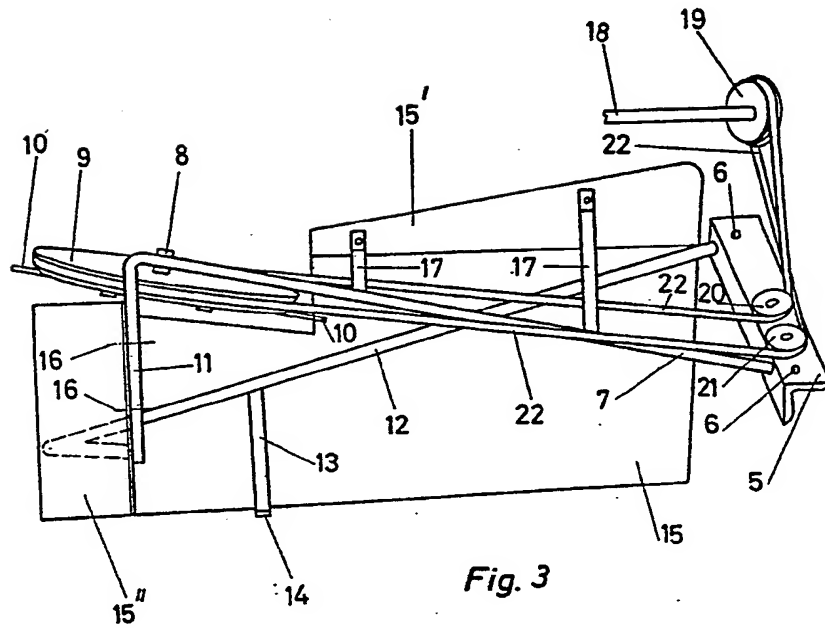
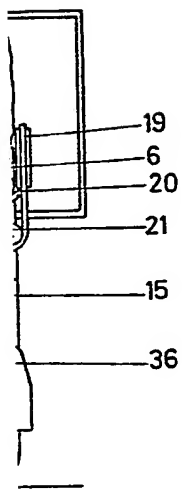


Fig. 6

1046196 COMPLETE SPECIFICATION
3 SHEETS *This drawing is a reproduction of
the Original on a reduced scale*
 Sheets 2 & 3



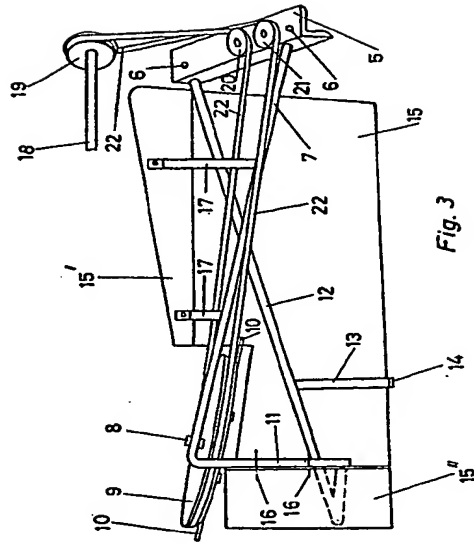


Fig. 3

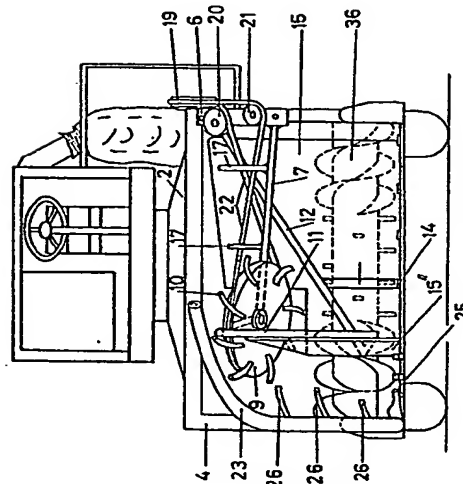


Fig. 2

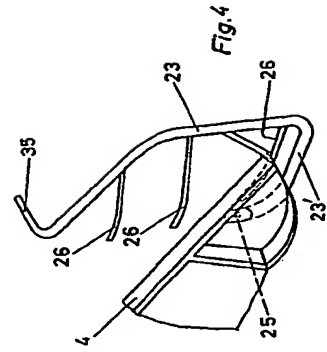


Fig. 4

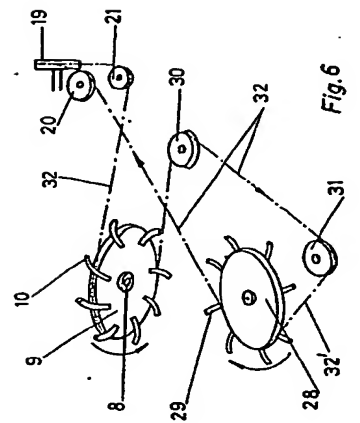


Fig. 6

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